



Neuroscience Data in the Cloud—A Workshop

September 24, 2019

The Keck Center | Room 100

500 Fifth Street NW, Washington, DC 20001

Workshop Objectives:

This public workshop will convene stakeholders involved in cloud-based neuroscience initiatives and research. The workshop will explore the burgeoning use of cloud technology to advance neuroscience research and share approaches to addressing current barriers. Participants will include individuals from academia, government, foundations, pharmaceutical and information technology industries, and the legal system.

Invited presentations and discussions will be designed to:

- Review the landscape of major neuroscience cloud-based initiatives and other uses of cloud technology within neuroscience research.*
- Discuss aspirational goals for maximizing benefit from data and compute in the cloud by empowering broad and meaningful data sharing and fostering open science.
- Consider best practices and policies that would increase efficiencies within and across cloud resources, including around aspects such as:
 - Authorization by data sources for and accessibility to a variety of data types by a variety of users
 - Resharing of derived data
 - Funding, sustainability, and governance
 - Protection of privacy
(Scope of distribution and type of data may affect the degree of privacy protection)
 - Regulatory compliance (HIPAA, Common Rule, FDA, etc.)
 - Consent to allow broad sharing and use of data
 - Data use agreements
 - Assignment of credit, ownership, and licensing
 - Ownership of data sources (participants, researchers, agencies)
 - Authorization for derivative uses
 - Acknowledgment of funding sources
 - Publication: scope and form of citation
 - Technical issues
 - Formatting standards (where they exist)
 - Validation standards (where they exist)
 - IT standards (communication and security protocols)
 - Archiving practices (types, locations, and parties responsible)
 - Researcher support and training
- Explore potential next steps to move the field forward to develop and deploy best practices in the service of achieving the aspirational goals.

*Please refer to the workshop briefing book for overviews of neuroscience cloud-based initiatives represented by workshop participants.

September 24, 2019

8:30 a.m. Welcome and opening remarks

DEANNA BARCH, Washington University in St. Louis, *Workshop Co-chair*

MICHAEL HUERTA, National Library of Medicine, National Institutes of Health, *Workshop Co-chair*

Session I: The Use of Cloud-Based Technology for Neuroscience Research – An Overview of Successes and Current Barriers

Objectives: Explore the range of neuroscience cloud-based initiatives and other uses of cloud technology within neuroscience research. Discuss current successes and barriers in the field.

8:40 a.m. Session overview

ADAM FERGUSON, University of California, San Francisco

Harnessing the Power of Cloud Technology to Propel Neuroscience Research Forward

8:45 a.m. Speakers

MARYANN MARTONE, University of California, San Diego; International Neuroinformatics Coordinating Facility

RUSSELL POLDRACK (*via webcast*), Stanford University

NICK WEBER, National Institutes of Health

9:30 a.m. General discussion with speakers

10:00 a.m. Introduction to breakout discussions

Workshop Co-chairs

10:15 a.m. BREAK

Participants will go to their designated breakout group location as indicated on the meeting handouts.

Session II: Breakout Discussions

Objective: In small groups, identify potential best practices and policies that will address current challenges to using cloud-based technologies to advance neuroscience research. Consider variations in best practices as a function of use case (i.e., basic versus clinical research in academia, commercial, and government settings). Discuss implications for researcher support and training.

10:30 a.m. Breakout Sessions

Protection of Privacy

Moderator: KRISTEN ROSATI, Coppersmith Brockelman PLC

Rapporteur: MAGALI HAAS, Cohen Veterans Bioscience

Discussants: C. WILLIAM HANSON III, University of Pennsylvania

CLARE MACKAY, University of Oxford

Assignment of Credit, Ownership, and Licensing

Moderator: JONATHAN COHEN, Princeton University

Rapporteur & Discussant: LEA SHANLEY, University of Wisconsin-Madison

Discussants: CAROL HAMILTON, RTI

SEAN HILL, CAMH

Data Management

Moderator: MICHAEL HAWRYLYCZ, Allen Institute for Brain Science

Rapporteur: MICHAEL HUERTA, National Library of Medicine

Discussants: DANIEL MARCUS, Washington University School of Medicine

RACHEL RAMONI, Department of Veterans Affairs

JANAINA MOURAO-MIRANDA, University College London

Platform Governance, Funding, and Sustainability

Moderator: GREGORY FARBER, National Institute of Mental Health

Rapporteur: ROSA CANET-AVILÉS, Foundation for the National Institutes of Health

Discussants: SEAN HORGAN, Verily

RUTH MARINSHAW, Stanford University

ANTHONY PHILIPPAKIS, Broad Institute of MIT and Harvard

- 12:00 p.m. LUNCH
All participants reconvene in Keck 100 following lunch
- 1:00 p.m. Report out from each breakout group (10-minutes each)
Breakout Session Moderators and Rapporteurs
- 1:40 p.m. General discussion
- 2:10 p.m. Overview of the afternoon breakout discussions
Workshop Co-chairs
- 2:15 p.m. BREAK
Participants will go to their designated breakout group location as indicated on the meeting handouts.
- 2:30 p.m. Breakout discussions
All participants reconvene in Keck 100 at 3:25p.m.

Clinical Trial and Research Data

Moderator: LEE LANCASHIRE, Cohen Veterans Bioscience

Rapporteur: DAVID ALONSO, The Michael J. Fox Foundation for Parkinson's Research

Discussants: LARA MANGRAVITE, Sage Bionetworks

REBECCA LI, Vivli

Genetic Data

Moderator: BENJAMIN NEALE, Massachusetts General Hospital; Broad Institute
 Rapporteur & Discussant: ARPANA AGARWAL, Washington University in St. Louis
 Discussant: MICHAEL NALLS, National Institute on Aging

Neuroimaging Data

Moderator: MICHAEL MILHAM, Child Mind Institute
 Rapporteur: DEANNA BARCH, Washington University in St. Louis
 Discussants: JESSICA TURNER, Georgia State University
 ALAN EVANS, McGill University

Real-World Data

Moderator: MARGARET SUTHERLAND, Chan Zuckerberg Initiative
 Rapporteur: STUART HOFFMAN, Department of Veterans Affairs
 Discussants: ADRIANA DI MARTINO, Child Mind Institute
 PETER WAHL, Optum

3:30 p.m. Report out from each breakout group (10-minutes each)
Breakout Session Moderators and Rapporteurs

4:10 p.m. General discussion

Session III: Future Directions

Objective: Synthesize key highlights from the workshop discussions, including identifying next steps and promising areas for future action.

4:30 p.m. Session Overview
 MAGALI HAAS, Cohen Veterans Bioscience

4:35 p.m. Moving the field forward: Reflections on tangible next steps (5-minutes each)
Lightning round of comments from a diverse group of panelists across multiple sectors (e.g., academia, government, industry, and nonprofits), including:

TED WILLKE, Intel Labs; Portland State University
 DOUGLAS LANDSMAN, National Multiple Sclerosis Society
 SILVANA BORGES, Food and Drug Administration

4:50 p.m. General discussion

5:25 p.m. Synthesis of workshop themes and future directions
 DEANNA BARCH, Washington University in St. Louis, *Workshop Co-chair*
 MICHAEL HUERTA, National Library of Medicine, National Institutes of Health, *Workshop Co-chair*

5:30 p.m. ADJOURN WORKSHOP

Workshop Planning Committee

Deanna Barch (Co-Chair), Washington University in St. Louis

Michael Huerta (Co-Chair), National Library of Medicine, National Institutes of Health

Amiee Aloj, Gates Ventures

Rosa Canet-Avilés, Foundation for the National Institutes of Health

Jonathan Cohen, Princeton University

Patrick Cullinan, Takeda

Greg Farber, National Institute of Mental Health

Daniel Geschwind, University of California, Los Angeles

Magali Haas, Cohen Veterans Bioscience

Michael Hawrylycz, Allen Institute for Brain Science

Stuart Hoffman, Department of Veterans Affairs

Michael Milham, Child Mind Institute

Karla Miller, University of Oxford

Benjamin Neale, Massachusetts General Hospital; Broad Institute

Kristen Rosati, Coppersmith Brockelman PLC

Luba Smolensky, The Michael J. Fox Foundation for Parkinson's Research

Margaret Sutherland, Chan Zuckerberg Initiative